

SIKKIM



GOVERNMENT

GAZETTE

**EXTRAORDINARY
PUBLISHED BY AUTHORITY**

Gangtok

Thursday 1st November, 2018

No. 575

**GOVERNMENT OF SIKKIM
DEPARTMENT OF ANIMAL HUSBANDRY, LIVESTOCK,
FISHERIES AND VETERINARY SERVICES
KRISHI BHAWAN, TADONG (SIKKIM)**

No. 106/AHLF&VS(Adm)

Dated Tadong, the 27.10.2018

NOTIFICATION

Whereas the State Government has been pleased to introduce Sikkim Pig Breeding Policy, 2018 with the aim of improving the genetic potential of the existing swine population of the state in the interest of the rearing farmers economic sustainability.

Whereas, the Pig Breeding Policy shall be implemented in the spirit of Sikkim Pig Breeding Policy, 2018 enclosed as Annexure-I, containing page 2 to 19.

Whereas the AH, LF & VS Department has been designated as the nodal Department for implementing the Sikkim Pig Breeding Policy, 2018 with immediate effect.

**Dr. Kumar Bhandari
MD, DM, FACC, FESC
Secretary
AH,LF & VS Department**



DEPARTMENT OF ANIMAL HUSBANDRY LIVESTOCK, FISHERIES & VETY. SERVICES



SIKKIM PIG BREEDING POLICY-2018

NOTIFICATION NO:106/AH&VS(Adm)/27.10.2018

Contact No: 9933035107/03592-231876

Fax NO:03592-231050/ 03592-27092

SIKKIM PIG BREEDING POLICY

Expert Committee Members

Dr. Dilip Kumar Sarma

Chairman

**Director; National Research Centre on Pig, ICAR, RANI,
Guwahati**

**Dr. Nayan Kumar Rai,
Principal Director, Co- Chairman of the Expert Committee**

**Dr. R.K. Tamang,
Director (A.H)-cum- MD(Sikkim Livestock Production & Development Corpn).**

**Dr. Santanu Banik ,
National Research Centre on Pig, ICAR, RANI**

**Dr. Dhireswar Kalita
College of Veterinary Sciences, AAU,Khanapara**

**Dr.Kessang Chewang Bhutia,
Director Research; CEO, Sikkim Livestock Development Board.**

Dr. Nima Tseten Bhutia(Director/ SR)

**Dr.Homnath Sharma
Additional Director(Piggery)**

**Dr.Sharman Rai,
Joint Director, In-charge Piggery Development; Sikkim.**

SIKKIM PIG BREEDING POLICY

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SIKKIM PIG BREEDING POLICY 2018.

Whereas, pig rearing is a traditional occupation adhering to the society since past beyond memory. The practice still today, is that almost 60% of total population of Sikkim consume pork. About 25 % of total house hold are keeping pigs as backyard farming. Sikkim have the potential to take piggery to a more profitable enterprise with the right approach with its available resources and interest of farmers and private player. In decades back, improved pure breeds like pure large white Yorkshire, Duroc, Tamworth and Hampshire were introduced for the first time for crossbreeding, resulting a higher yield and improved performances. But these breeds/ crossbreeds have been developed without following any systematic and scientific breeding program which results in breeding problems and poor performances overtime even under optimum feeding condition. Due to haphazard breeding practice in rural areas indigenous non-descript pig breeds of Sikkim is declining. The indigenous Pig stocks are with poor growth rate and productivity but they have some genetically inherited good traits like dark coat color, good mothering ability, early maturity, tolerance and resistance to parasites and diseases and low nutrient requirement. Thus, conservation of this indigenous breeds was utmost important. So to address the above issues and to develop pig breeds/crossbreeds that are appropriate, adaptable and productive even in smaller context in Sikkim, a scientific intervention in assessing the profile of existing breeds, correlating them with production performance and identifying the desired breed(s) for Sikkim are very much necessary for the state. This can rightly contribute in framing a breeding policy for the state;

And Whereas; in aiming at improving the genetic potential of the existing swine population of the state in the interest of the pig rearing farmers economic sustainability, the Government of Sikkim, Department of Animal Husbandry, Livestock, Fishery and Veterinary services, do hereby develop a pig breeding policy known as the " Sikkim Pig Breeding Policy";

And Whereas; the State Pig breeding policy for Sikkim is strictly formulated according to the Guidelines of ICAR-NRCP; Rani ,Government of India as in technical aspect and the policy of the Government of Sikkim for developmental process in the state;

Now therefore, with the view to achieve the above objectives, the State Government is hereby pleased to notify the Sikkim Pig-Breeding policy-2018 as under:-

1. JURISDICTION AND DEFINITION :

- (1) This policy shall be called " the Sikkim Pig Breeding Policy" .
- (2) It shall extent to the whole of Sikkim.
- (3) It shall come into force on the date of its publication in the Official Gazette.

2. DEFINITIONS:

- (1) **Breed:** means a group of animals related by descent and similar in most characters like general appearance, features, size, configuration, etc. are said to belong to a BREED;
- (2) **Animal Breeding:** means the application of the principles of genetics and biometry to improve the efficiency of production in farm animals. Animal breeding in this case – contextually, is producing improved breeds of domesticated pigs by improving their genotypes through selective mating;

(3) Indigenous Pigs of Sikkim: means any or all the animals classified under the term "swine", that has been inherently in existence indigenous within the state and reared as domestic pigs by the people of Sikkim.

3. STATE PROFILE

(1) Geographic, agro-climatic conditions and demographic pattern: Sikkim is a hilly state in the eastern Himalayas and has become 22nd state of the Indian Union on 16th May '1975. The total area is 7096 square kms located in North Eastern region. It is a landlocked state whose southern part shares with domestic border of West Bengal, China in north, Nepal in west and The Bhutan in east border. It is connected with about 174 kms of national highway NH-10 and NH 110 connecting it to West Bengal and NH 150 to Assam respectively.

The Total population according to census 2011 is 6.11 Lakhs. Urban population is 25% and rest 75% are rural inhabitants. The sex ratio is 1000:890 (Male:Female). Literacy rate is impressive in National index constituting 80%.

Sikkim has Four climatic Zones viz. Sub-tropical; Semi-temperate, Temperate and Alpine. The population density is 86/Km.

(2) Policy environment:

Sikkim is among the few states in the country now attempting to formulate a breeding policy in Pig sub-sector comprehensively with a view to understand the contribution of Piggery development to livelihoods, household incomes and rural self employment; in appropriate to the social, economic and environmental importance of the sector in holistic approach thereby channeling newly launched organic mission mode of the state government.

In the wake of the economic liberalisation sweeping the national and global policy environment, absence of a clearly stated policy frame can prove counter-productive. In the years to come the state will therefore have to take a more holistic view of the sector and find ways of catalyzing rapid economic growth and development, to the best advantage of the state. The most decisive role that the state government can play for this is to design a policy framework for this sector to guide it through the coming decades, consistent with the state's natural resource base and its geographical location.

(3) Livelihood:

Majority of population are primarily of agrarian economy. Government has ventured many a project to make rural economy a sustainable, self reliant and self sufficient which are requisite steps towards achieving the national mission "doubling the economy by 2020". Agriculture and Livestock has traditionally been a subsistence profession in Sikkim. It is seen as a means to generate food for one's family, ignoring its potential for commerce, growth and prosperity. Maize, Rice and cash crops remain the common cultivation practice in Sikkim by gross value of output.

Animal husbandry has been inherently associated with the agriculture farming community for livelihood. Backyard rearing of livestock are commonly found by majority. Now the Livestock entrepreneurs are scaled up to commercial level with many private players mainly educated youths are involved. Livestock farming now has become a promising industry to opt for sustainable means of livelihood. The Pig farming size as seen amongst subsistence farmers are Two or three numbers. Whereas some Private Farmers are keeping Ten to Twenty numbers of sow units.

Recently the policy environment of Sikkim has been changed from conventional practice of Livestock Farming to Organic Farming as the state is declared Organic. Now the Animal Husbandry sector is at conversion phase of Organic Mission channeling with all its necessary strategies.

4. PIG STATICS:

There are total four districts by which the Sikkim has been made into four administrative divisions. The state pig population as per the 19th Livestock Census 2012 is 30,307 of which 27850 are Exotic crossbreds and 2447 are indigenous. The consolidated data report of the above census shows 115407 No. of Households. Out of which the house hold having Pigs is 17953 Numbers.

Table 1. District wise population of pig (As per 2012 Livestock Census in Nos.)

Sl. NO	Name of District	Pig Population Distribution
1	North	3793
2	East	8077
3	West	9987
4	South	8460

(1) Pig rearing system: Pig farming in Sikkim is typically divided into two systems; commonly backyard pig farming seen in the villages ; some private players do practice pig farming at commercial level and intensive farming seen in Government organized farms. The village and traditional farming is characterized by small numbers of pigs reared by the subsistence farmers, either in a small confined pigsty constructed usually with locally available materials wood and bamboo gathered near the house.

Farmers of this region have evolved a self-sustainable local resource based production system, in which pigs are mainly dependent on local vegetation, crop residues and kitchen waste. This system aims to get medium output from nearly zero input and mostly based on the locally available resources. Feeds consist of mainly kitchen wastes, Vegetables – rice, maize, and wild weeds, Tuber ,leaves, and yams. Oil cakes, floor, grains are used to supplement for fattening.

Although the local small, indigenous pigs have been steadily replaced with improved crossbreds over the years, pig production is still largely traditional other than in organized private and Government Farms. The traditional methods involves feeding different forages combined with garden and kitchen waste all cooked with firewood to increase the palatability and its digestibility.

(2) Characteristics of major pig breeds

(a) Large white Yorkshire (purebred): It is a native breed of U.K imported to India from U.K, New Zealand, and Australia. It is large in size with a long and slightly dished face. Body is covered with fine white hairs, free from curls. Skin is pink in color and free from wrinkles with long and moderately fine coat. Ears are thin, long and slightly inclined forward and fringed with fine hair. Neck is long and full to the shoulders with deep and wide chest, shoulders are not too wide. Back is slightly arched, and loins are long and broad with a well developed wide

rump. Ham is fleshy extending up to hocks. Tail is set high. Pasterns are strong and straight with clean feet. It has the capacity to thrive well under different climatic conditions that is why it is extensively use for crossbreeding and breed upgradation.

(b) Hampshire (purebred): This breed has been developed in the U.S.A and is now one of the world's most important breeds. The Hampshire is a black Hog with a white band around the body at the shoulder including the front legs and feet. The head, tail, legs and back are black. The ears are erect and the face is longer and straighter compared to other breeds. Hampshire sows are very prolific, have extra longevity, and make good mothers. They have been used extensively in crossbreeding because of their good carcass quality- popular for their lean, meaty carcasses. They were noted and criticized for their large size, but admired for their prolificacy, hardy, vigour, foraging ability and outstanding carcass qualities. Sows give birth to a large litter of 10 piglets with 1 kg birth weight, but some sows have been known to have litters of up to 16 piglets. A boar weigh 230 kg to 340 kg and sows around 200 to 290 kg.

(c) Large White Yorkshire cross: These breeds are frequently crossed with local variety to generate a composite breed called improved breeds that are considered an upgradation form with a good blend of superior exotic germ plasm. LWY crosses have good mothering ability and good Prolificacy with average litter size of 7 numbers which increases following subsequent farrowing.

(d) Hampshire cross local: They are black in colour with the typical white belt covering the shoulder portion including the forelimbs extending till the pastern. It is most preferred by the locals and are very popular in the state. It attains puberty at 8 months of age. Sows exhibit strong maternal instinct with exceptional nursing ability. Average litter size at first farrowing is 6 nos. which increases in the range of 7-12 during subsequent farrowing. The adult live weight of local Hampshire crosses is 140 kg for breeding boars and 120 for that of sows.

(e) Large Black Colour Crossed: It is also a breed in Sikkim which is believed to be brought by local farmers through the cross borders sharing of the state. It is preferred by the local due to its colour, good litter size, good mothering ability.

(f) Duroc: Durocs can range from a very light golden, almost yellow color, to a very dark red color that approaches mahogany. In 1812, early "Red Hogs" were bred in New York and New Jersey. They were large in size. Large litters and the ability to gain quickly were characteristics. Duroc pigs are large-framed animals and are muscular. Average live body weight of the mature sows is around 204-295 kg. And average live body weight of the mature boars vary from 227 to 340 kg. Known for one of the fastest growing breed in the world.

(g) Punrhi (Indigenous Nondescript breed of sikkim): This is a small size breed found rarely in remoteness of Sikkim. They are predominantly black in colour with slight pot bellied and medium snout appearance. Presence of bristles in forehead ; bearing body weight on tip of toe ; erect and small ear pinna and comparatively short legs are prominent charcters of punrhi. The mature body weight ranges between 40 to 50 kg and litter size about 5 to 8 nos. These pigs are mainly raised in backyard system. They have good mothering ability, early maturity, tolerance and resistance to parasites and diseases and low nutrient requirement. This breeds/varieties are yet to be characterized with proper scientific intervention. There is a gradual decrease in the population of punrhi breed due to heightened interest of farmers towards fast growing crossbreds pigs so conservation of this breeds with proper strategy is gravely important.

Table (2)

STATUS AND INFRASTRUCTURE OF AH,LF& VETY SERVICE DEPARTMENT.

Sl. No	Dairy Sector	Numbers	Remarks
1	Milk Collection centers Sikkim Milk Union	405	
2	Milk collection centers North Dairy Milk union	386	
3	Milk Production per day	125000 Litres	
4	Per Capita Milkavailability	243 ml.	
	Breeding sector		
1	No.of Artificial Centers	150	
2	No. of Breeding Bulls	200	
3	Intensive Cattle Breeding Area	4	
4	Intensive SIRI cattle Breeding(Conservation) area	3	
5	Feed Processing Plant	1	
6	Yak Breeding Farm	1	
	Poultry Sector		
1	Poultry Demonstration Farm (Layers)	9	
2	Private Broiler Farm	650	
3	Poultry Meat Production(Broiler)	3300 M.T/year	
4	Poultry Meat Production(Desi)	21.5 M.T	
5	Hatchery	1	
	Piggery Sector		
1	No.of Pig Breeding Farm	6	Two nucleous farms. Four multiplier farms
2	Satellite farm	7	
	Veterinary Services Sector		
1	State/District Vety.Polyclinic	2	
2	Hospitals	16	
3	Dispensaries	52	
4	Stockman Centers	67	
5	Livestock Checkpost	5	
6	Mother Dairy Farm	1	
	Capacity Building Programme		
1	Angora Rabbit Breeding Farm	1	
	Fishery		
1	Trout Hatchery	4	
2	Trout Rearing Farm	1	
3	Carp farm	1	
4	Automatic Trout Feed mill Plant	2	

Table 3: Piggery Farms under the Department Of AH,LF&VS, Sikkim

District / Location of Farm	Date of Inception	Farm Capacity	Stock Position (M:F)	Breed Maintained	Annual Piglet Production
North District Piggery Farm Bop, Chungthan	1987	50	03:13	Hampshire	150-200
West District Piggery Farm, Gyaba Gyalshing	1986	50	5:25	Hampshire	1150-200
East District Piggery Farm; Assamlingzay	2011	50	3:33	arge white york shire	250-300
South District Piggery Farm; Karfectar	1986	30	8:19	Hampshire & Tamworth	100-150
South District Piggery Farm; Mellidara	2013	50	03:28	Large white Yorkshire	100-150

5. INSTITUTIONAL STRUCTURE AND MANPOWER

Following are the various divisions under AHLF&VS Department :

- i. Animal Husbandry;
- ii. Veterinary Service and Public health;
- iii. Dairy Development;
- iv. Disease Investigation , Rinderpest Eradication Programme, Rabies Control, Vety.Hospital, Feed & Fodder Development, Poultry Development, Veterinary Extension, Livestock & Environment, Small Ruminant & Other livestock surveillance;
- v. Integrated Veterinary &Animal Husbandry Training Institute ,Gangtok;
- vi. Livestock Census & Statistic Division;
- vii. Engineering Division;
- viii. Each district administration shall be headed by one Joint Director colleaged by Deputy Director and V.Os , Inspector, Stockman under which Veterinary A.I centres, livestock farms and feed and fodder units are placed at his/her administrative control.

6. CONSTRAINTS AND LIMITATIONS:

While there is evidence of increased Pig rearing and consumption of Pork which is mainly met from local farmers, there is an increasing demand of Piglets every year. Despite the efforts given by the AH, LF & Vety. Services Department to promote Pig Farmers to rear Sows, most of the farmers intend to rear fatteners which result in non or less production of Piglets within the State. However as the demand of Pork increases Pig Farming is still the only answer to fill up the demand gap. Thus, the following are constraints and limitations identified for slow pace of development in Pig husbandry in the State.

- (a) Huge gap between needs and supply of piglets.
- (b) High cost of organically balanced Feeds.
- (c) Shortage of animal/pig resource based Farmers, no parental stocks. Replacement of stocks could not be made in department farm due to non-availability of fund, as all revenues earned are accounted to Government Account.
- (d) High housing cost and specific housing pattern not available.
- (e) Poor pig productivity/potential.
- (f) Sporadic outbreak of Classical Swine fever and some unnotified disease causing economic loss to Pig Farmers.
- (g) Lack of knowledge in management and Nutritional feeding skill. The traditional practice followed is to feed pigs with forages, wild leaves, shrubs, herbs collected from locally available areas combined with kitchen and garden waste which is cooked and fed as a wet slop which is found to be nutritionally inadequate for optimum production. Concentrates feeds are too expensive for the local farmers
- (h) No organized breeding infrastructure. Absence of designed breeding programme and planning results in inbreeding.
- (i) Another constraints is to opt for organic channel with the state policy for organic mission and the Sikkim is in conversion phase for Organic farming.

7. (1) OUTLINE OF STATE BREEDING POLICY FOR SIKKIM :

Pigs husbandry is one of a Socio-economic importance to the livelihood of major communities in Sikkim. Its socio-cultural popularity is seen related to rituals; religious practices; marriage ceremony and Festivals of major communities. Pork is also a favoured meat among them and there is no religious taboos related to pork consumption in the state.

Sikkim have a pig population of 30,307 (2012 Livestock Census). The Pork consumption is claimed to be nearly 60% of the population and the requirement is considered 25gm/day. Thus, Pork requirement/annum is 9000 MT.

Sikkim has potential to take piggery in a more technical approach by application of the right instrumental policy with stringent adherence to organic mission mode. The concept designed is a two way, adopting the Farm Policy and the Farmers.

The followings are taken into account in the Breeding Policy –

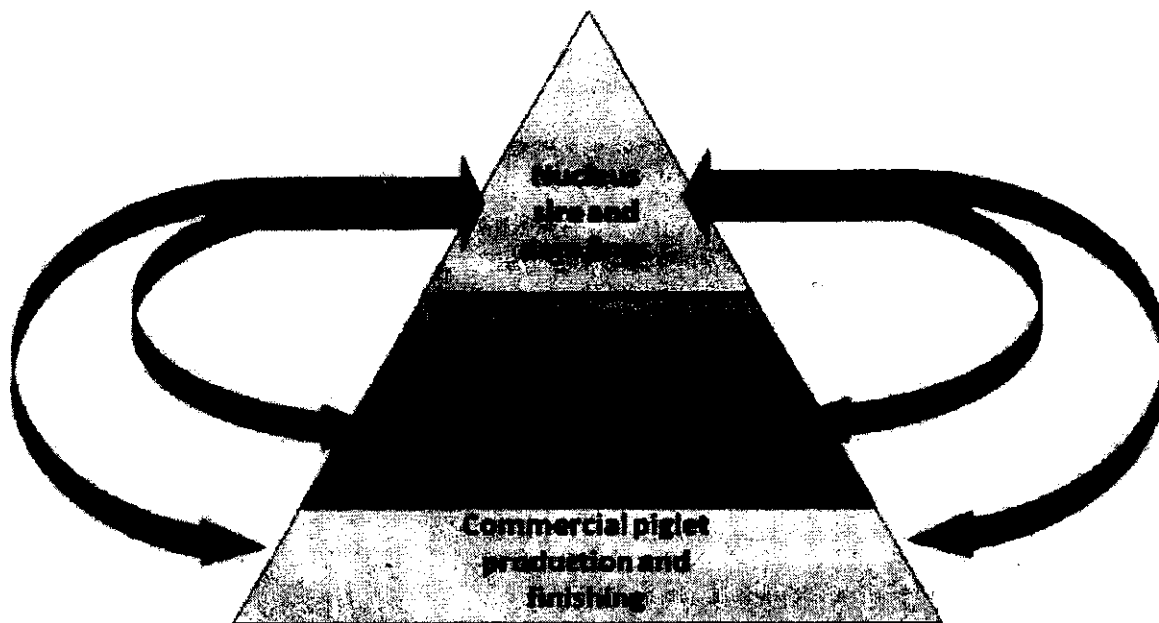
Pig Population Dynamic

- (i) Litter size
- (ii) Litter Index (The litters per sow per year)
- (iii) Economics
- (iv) Feed Conversion Ratio
- (v) Preference and likes of the Local

(2) Objectives:

- (i) Genetic improvement through selective breeding.
- (ii) Conservation and maintenance of indigenous pig germ plasm.
- (iii) Genetic improvement by crossbreeding and gradually maintaining a desired level of exotic inheritance.
- (iv) Expansion and strengthening of Breeding Infrastructure and support mechanism to propagate elite germ plasm through A.I.
- (v) To establish State Boar Semen Station for maintaining Exotic Breed in Closed Herd by import of Frozen Semen or Live Pigs.

BREEDING PYRAMID



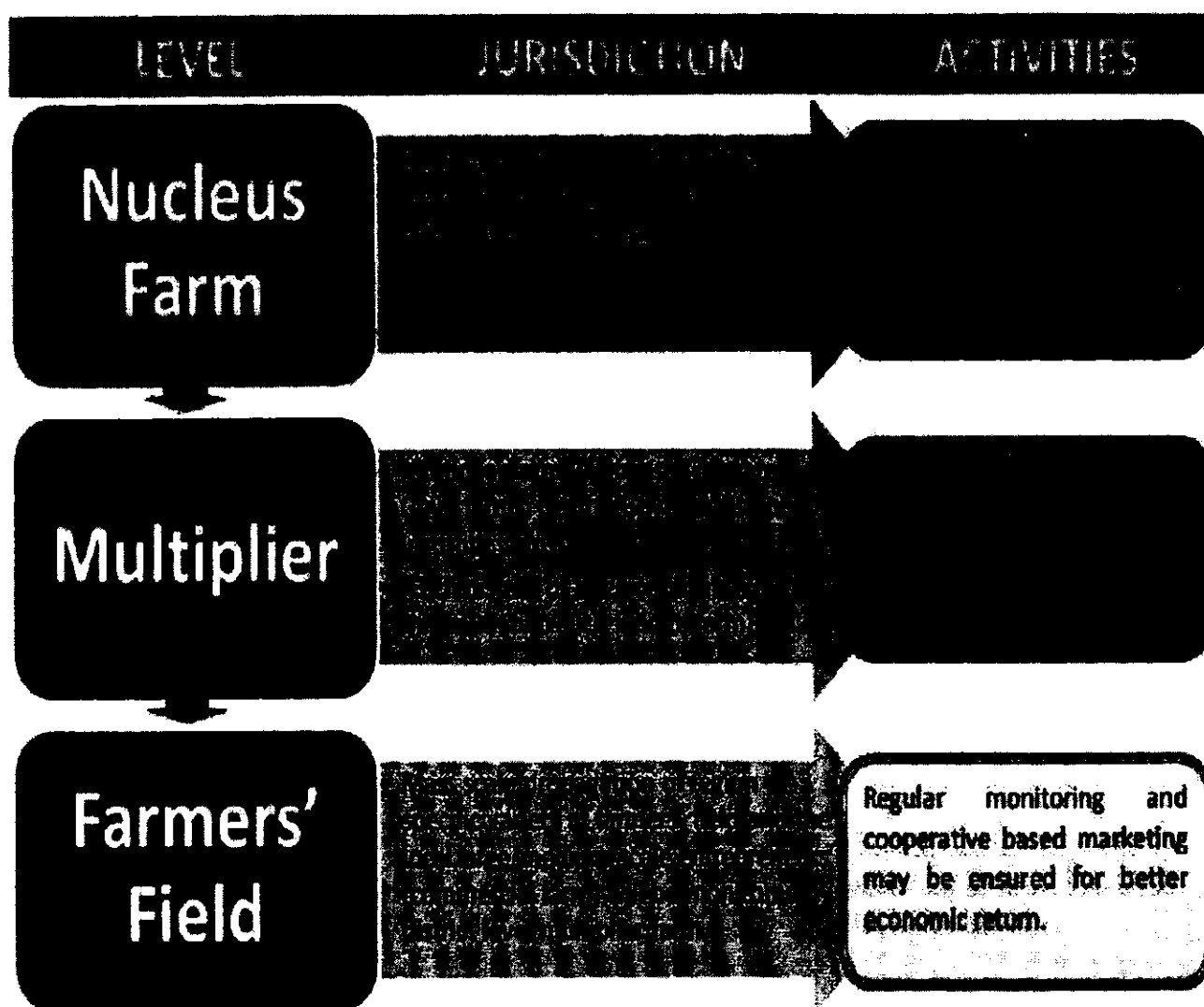
8. (1) PIG BREEDING POLICY:

- (i) Punrhi indigenous pig breed of Sikkim, where no crossbreeding shall be applied, the germ plasm of this breed shall be established and conserved.
- (ii) Nucleus breeding farm for such breed shall be established.
- (iii) Prized animals should be collected from farmers field/State Farm to the Nucleus herd.
- (iv) Pedigreed animals need to be propagated only in identified breeding areas specified as Indigenous Pig Breeding Areas(IPBA). However, Govt. should ensure necessary incentive to farmers of these areas. For this, rate of piglet and pork of Punrhi pigs may be graded as of premium values as compared to other pork .
- (v) Artificial Inseminations should be delivered through Inseminator who have been trained by the Department.

8. (2) **CROSS BREEDING** : Cross breeding may be propagated through selective breeds of Hampshire, Yorkshire, and Tamworth.

Schematic Diagram for Pig Breeding Programme

BREEDING POLICY (crossbreeding)



8. (3) BREEDING WITH EXOTIC GERM PLASM:

- (i) Import of germ plasm of Hampshire, Yorkshire and Duroc from sources which are free from scheduled Diseases.
- (ii) Import of Live Animals may be considered at regular intervals at a first primary strategy with import of Semen as a secondary option, in improving and upgrading Herd Quality.
- (iii) As programme for breed-specific nucleus herd improvement may be developed for subsequent programmes.

9 BREEDING PLAN:

(1). Nucleus Farm:

- (i) Nucleus farm should be of pure exotic breed, well-developed crossbred or pure indigenous breed.
- (ii) Crossbred animals of desired level of exotic inheritance should be maintained. In case of nucleus herd of pure animals, mixing/crossing of germplasm must be restricted.
- (iii) Minimum 30 breedable sows unit should be maintained with a sex ration 1:3 and thus 10 sires (2 sires from each 5 unrelated sire lines) need to be maintained by each of the unit.
- (iv) Selection of male animals should be based on weaning weight (best 25%) and 8 month body weight (best 5%), based on two stage sequential selection. Selection of female animals should be based on dam's litter size at birth (>7) and weaning weight (best 25%) and number of functional tests (at least 6 pairs of functional tests).

However, these can be changed as per performance of local crossbred animals.

- (v) Centralized data recording system should be initiated. Generation wise genetic evaluation may be carried out to estimate the response to selection. The overall genetic gain due to selection, selection differential and heritability should also be calculated.
- (vi) Inbreeding should be avoided. Replacement of boars need to be done at regular interval of 2 years of productive herd life. Sire exchange programme among the farms will also be helpful to reduce the inbreeding effect. Culled male animals should be castrated before selling to avoid indiscriminate breeding.
- (vii) Three numbers of farrowing per sow need to be recorded. Three farrowing per sow should be completed in 2 years.
- (viii) Weightage of selection need to be given on litter size and weight at birth and weaning.
- (ix) Besides routine productive, reproductive, adaptive and carcass traits lifetime production traits should also be recorded.

(2) **Multiplier and Farmers' Farm :** Breeding plan for multiplier and farmers' field should be separate with that of nucleus farm. They are only to make *inter-se-mating* among the developed crossbred animals. No indiscriminate crossbreeding is allowed at farmers' field.

(3) **Mating system:** Breeding propagation activity can be Artificial Insemination (AI) or Natural service practice. To achieve the target the State level Multiplier farm must have a training center for the local farmers including modest facility/laboratory for semen collection, evaluation and preservation.

(4) **Capacity building:**

- (i) Training of farm managers/large scale entrepreneurs on breeding management.
- (ii) Regular/refresher training for technical personnel, para-vets and livestock service provider.
- (iii) Training on semen collection and AI for farmers/service provider.

(5) Both type of Pig practitioners like Breeders as well as Fattener shall be encouraged as per their interest.

(6) Entrepreneurship development and Industrial development should be explored to promote Piggery and Piggery Products.

(7) Pig Farming Policy and Guidelines should be developed which will result on organized Pig Farming. This can be implemented and executed in accordance to the Organic Mission mode.

10. OPERATIONALISATION OF THE BREEDING POLICY:

The Sikkim Pig Breeding Policy following approval and notification by the government, the operationalization process needs to be initiated prior to implementation. The following activities shall succeed the notification for implementing the policy:

- (i) Development of implementation strategy, detailed project report and work plan
- (ii) Allocation/Mobilization of resources
- (iii) Constitution of Expert Advisory Committee
- (iv) Establishment/Strengthening of infrastructure
- (v) Deployment of manpower
- (vi) Capacity building /training at different levels Farmers/Officials)
- (vii) Import of exotic germplasm from reputed National and International source.
- (viii) Sourcing of required indigenous germplasm available from different locations of Sikkim.
- (ix) Development of own feed resources and through linkages/purchase.
- (ix) Setting up of delivery mechanism to supply good quality germplasm (piglets, semen) from the nucleus herd/multiplier farms to the farmers through government network and private entrepreneurs.

- (xii) Set up satellite Artificial Insemination centers at government and private level.
- (xiii) Incentivised castration of inferior male pigs in the field
- (xiv) Incentivised conservation /rearing of indigenous germplasm
- (xv) Strengthen the ban on randomized and illegal import of pigs from neighbouring countries for breeding in the state.
- (Xvi) Establish data collection mechanism for performance evaluation in the field and for impact assessment.

11. CONCLUSION:

Implementation of pig breeding policy for the state of Sikkim will not only target socio-economically weak communities including women folk in terms of their sustainable livelihood security but also address the issues of pig production system under changing climatic scenario by improved production and productivity. It is also expected to mitigate the current demand supply gap and open avenues for development of entrepreneurship and export of pork and pork products.

Since, the pig rearing system is dynamic and pig population structure is expected to change over a period of time; the current breeding policy should be reviewed after a minimum period of five years.

Draft prepared by:

Dr. Sharman Rai (Joint Director)

Incharge of piggery development Scheme.

Draft Signed by Directors:

Draft signed by Principal Directors:

By order and in the name of the Governor.

DR. Kumar Bhandari.
Secretary
Department of AH. LF & VS.

